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ABSTRACT

Life expectancy among certain American Indian tribes is only 50 years of age as compared with 74.6 years for the general population. Leading causes of death among Indian infants continue to be respiratory, digestive, infective, parasitic disease, and congenital malformations. Child obesity, dental caries, atherosclerosis, iron deficiency anemia, and otitis media are prevalent. All are related to lack of good nutrition and inadequate living standards. Changes from traditional diets have produced an intake consisting of 54% fat, 30% carbohydrates, and 15% protein. Mothers or family caretakers have the most vital role in forming healthful eating practices for themselves and their families. Proper weight gain during pregnancy and avoidance of alcohol and drugs are critical to the birth of a healthy infant. Intolerance to milk, common among adult Indians, must be compensated for by inclusion of other dairy products in the diet to assure adequate calcium levels. The Indian Health Service endeavors to educate and train young mothers and families in a life style that will retain their health and vigor through many years. (NEC)

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"COLOR ME HEALTHY"

RISK REDUCTION FOR INDIAN CHILDREN THROUGH GOOD NUTRITION

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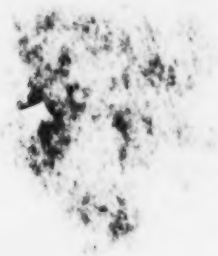

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Color is what the eye sees when light strikes it. Everything in the world has color. It lends excitement to life. There is a great deal of pleasure in using color in drawings and paintings. Simple rules and natural laws of color make the use of color harmony easy and lead to appealing results. The creative artistry of the American Indian is recognized worldwide. The Indian believes that happiness comes from living in harmony with the universe in much the same way he blends shades and hues to achieve harmony in his painting. Colors are reflected in the healthy glow of an Indian child. This is a blend we all want to achieve. How is this done? How do we live in harmony with the universe to be healthy?

Certain life style patterns lead to what we term "high risk". In Indian Health Service we endeavor to educate and train young mothers and families in a life style that will retain their health and vigor through many years. Unfortunately the life expectancy

among the tribes I work with is 50 years as compared with 74.6 in the general population. Leading causes of death among Indian infants continue to be respiratory, digestive, infective, parasitic disease and congenital malformations. Dental caries, anemia, and otitis media are prevalent (1). All are related to a lack of good nutrition and inadequate living standards. What can we do to reduce the risk and increase the life span?

Meetings such as this give us the opportunity to exchange ideas, observe strategies others are using and to receive technical assistance needed to achieve our goals. Indian families are noted for their traditional hospitality. They are generous with their possessions, including food, even with strangers. The women of the family always set food before any visitors. If hungry, the guest eats, if not, politeness requires that he taste the food and offer thanks to his host.

Historically regional foods were the main staple of the Indian child's diet. In the Northeast berries, fowl, roots, and fresh greens were used. In the Dakotas wild rice was strained and mixed with the broth of venison. In the Northwest fish, often salmon, was a main tribal staple. Salmon was also used in religious ceremonies. Maize, or corn, berries, roots, beans, and squash were universal staple foods for most Indian families. The buffalo provided vital meat for the Plains tribes (2).

Note that venison, buffalo, fish and fowl are the leanest of meats. The vegetables and fruits provided needed vitamins and fiber. The Indian searched for food and found ways to balance his diet. "Ethnocentrism" is the idea that the way we do things and the way we live is the best way--simply because it is our way. We must give up this notion because there are many ways to do things, some better while some are worse. We must acquire the ability to objectively evaluate and decide which ways we should change and which we should retain. Unfortunately the life style of the American Indian has changed and so have his dietary habits. He no longer chooses lean meats but rather fries fatty beef and pork. He no longer chooses squash, berries, greens, and roots. In taking a dietary recall I find that he infrequently mentions vegetables and fruits as a part of his diet. In the past he cooked his food by broiling over an open fire, boiling or baking. Now most of his food is fried in fat. The popular deep fried "fry bread" is a recent addition to his diet. Previously it was squaw bread baked in a skillet with little fat. These changes have resulted in a diet of 54% fat, 30% carbohydrate and 15% protein with approximately 3000 calories and a cost of $2.98. Fruits and vegetables are less costly than bacon, sausage, balogna and pork chops. Whole grain breads and cereals provide needed fiber and vitamins. Commodity foods can supply the basic four nutrients needed.

The mother or family caretaker sets the stage for the child's eating habits throughout life. She has the most vital role in forming healthful eating practices. For many years the US compared very unfavorably with other nations in the perinatal mortality rate. It was determined that the poor nutritional status of the mother was the problem. For this reason the Federal government now spends 1.6 billions a year on the WIC program. It is the only Federal social program which has doubled during the years of reduced spending. Nutritious foods such as juices, milk, unsweetened cereals are supplied to provide needed calcium, iron, protein, vitamins and calories for infant growth and development. Both physical and mental growth are adversely affected by poor nutrition.

The mother should gain from 24-28 pounds during pregnancy. This weight gain is approximately 7 1/2 pounds baby, 2 pounds increased size of the uterus, 4 1/2 pounds fluids for breast feeding and 8 1/2 pounds blood and other fluids. No attempt should be made by the obese mother to lose weight during pregnancy. The mother who is a diabetic or who develops diabetes during pregnancy needs special dietary care. The stress of pregnancy often precipitates a condition known as gestational diabetes in which the baby develops in a high sugar environment and experiences problems at birth. The teen age mother is also high risk because she must provide nutrients for her own growth and development as well as that of her child.

The prenatal must avoid alcohol and drugs. Fetal alcohol effects and fetal alcohol syndrome may be caused by even small amounts of alcohol or beer consumption. Some research is presently being done on the effect of the drinking father on the unborn child. Symptoms of fetal alcohol damage are hairiness at birth, small eye openings, flat nasal bridge, short up turned nose, incompletely developed midface, no groove between nose and upper lip, small thin upper lip, posterior rotation of small ears. The brain develops with the skull resting on top and alcohol causes small brain, lack of convolutions, and lack of gray covering. This means small head circumference and loss of varying degrees of intelligence. FAS children achieve about 2/3 of their normal growth and never compensate for brain development. Means of prevention include:

1. Create more awareness among health care workers
2. Teach young women about birth control and caring for themselves before becoming pregnant.
3. Distribute information about FAS
4. Identify women with a drinking problem and refer to alcohol programs.
5. Avoid guilt provoking criticism and help her eliminate bad habits through constructive advice, counseling, and other services.

Another risk to the fetus is anemia in the mother. Red blood cells are needed to carry oxygen to the baby and both physical and mental damage results when iron for manufacturing red blood cells is low. The mother is given prenatal capsules containing iron and calcium to supplement the diet. Too often she omits these due to a slight nausea they may cause. She must get the major portion of these minerals from foods. Folic acid is needed to utilize the iron. A diet which includes all of the Basic 4 foods is essential.

Calcium is supplied by dairy products. Many American Indians are unable to tolerate milk as adults. It causes abdominal pain, diarrhea, gas, bloating and/or cramps (3). Lactase is an enzyme present in the intestines which chemically converts lactose or milk sugar so that it can be digested. This problem occurs in ethnic groups whose history did not include milk in the adult diet: Orientals, Blacks, Native Americans, Jews, and Mediterreanean people. In fact, the majority of the world's population is milk intolerant as adults. The baby's first food is milk and should be little else during the first six months. He should be kept on milk as long as possible. Intolerance to milk increases as he grows and matures. Most persons do not have a complete intolerance and can handle moderate amounts of milk when consumed in combination with food. Cereal with milk, puddings, chocolate milk, milk flavored beverages, dry powdered milk slipped into meat loaf, gravy, cream sauces, and soups provide ways to

increase dietary calcium. Lactic acid is available through pharmacies for addition to milk. Sweet acidophilus milk is available in groceries. Yogurt, aged cheese, cottage cheese and ice cream are also good sources of calcium.

The child requires the same nutrients as the prenatal but in different amounts. The chief areas of risk in child feeding are: obesity, atherosclerosis, dental caries, and iron deficiency anemia. A major problem among the population we work with is obesity. It is imperative that we educate the parents about the dangers of overfeeding and misuse of food during infancy and early childhood because habits of overeating may be established and persist into adult life. Breast feeding should be encouraged with no solid foods introduced before six months. Vigorous physical activity on a regular basis is advantageous. Several smaller meals are more effective in preventing obesity than one or two large meals providing the same energy intake. When one or both parents are obese the child is at greater risk. Children with a family history of diabetes need special counseling. These children should be identified and given guidance with respect to excessive weight gain. We give an outline of times to add solid foods during the first year, and a specific food pattern with small servings for the child ages one to six. Many individual counseling sessions are held for obese children. This dietitian has written a Wellness Cooking book with low calorie milk beverages, tasty vegetable dishes, low calorie cooking methods and low calorie recipes to give practical assistance.

The leading causes of death in the US are stroke and heart attack. It is distressing to realize that the beginning of these problems are well established in childhood. Atherosclerosis is a slowly progressive disease characterized by the formation of atheromata in the aorta and in medium and large arteries. The atheroma consists of a fibrofatty plaque having a core of cholesterol complexed with proteins and cholesterol esters and a covering of fibrous plaque. Opinions differ regarding the degree of alteration of a child's diet but there is general agreement that total fat, saturated fatty acids and cholesterol should not be excessive. We do see numerous children with borderline or high blood pressure.

Dental caries are widespread with serious consequences of pain, expense and loss of teeth. Dietary carbohydrates are essential to the development of plaque. Bacteria exist in abundance in the warm moist environment of the mouth. When we introduce the third factor, a carbohydrate source of food, the bacteria reproduce rapidly and excrete an acid which disintegrates the enamel of teeth. For this reason we advocate weaning from the bottle at one year, never putting the child to bed with a bottle of formula, and nothing but formula or water given by bottle. The young child can drink from a cup at an early age, at least by six months. He also can sip through a straw. Sticky sweets and simple sugars such as candy, kool aid, pop, sugared cereals, sweetened beverages, cookies, chewing gum, and jelly should be avoided. The pop machine is usually a popular attraction.

Foods eaten between meals should be those of low cariogenicity. Floridation supplementation is not recommended before six months, but is advisable after that. The importance of early establishment of sound habits related to cleaning the teeth cannot be overemphasized. The baby can be given a tooth brush and the mother can use a wash cloth to clean teeth as soon as they appear. He can be taught to brush immediately after consuming food and to floss the teeth daily. Most bacterial growth occurs within twenty minutes after eating.

The fourth major problem is iron deficiency anemia. This is defined as as a state in which concentration of hemoglobin is below the limits of the following:

1/2 - 10 years.....34 hematocrit

10-14 years.....37 hematocrit

14 + male.....41 hematocrit

14 + female.....37 hematocrit

Below normal concentrations of hemoglobin are most commonly seen in infants of low birth weight, full size infants between six and twenty four months, and children and adolescents from low income families. Low hematocrits are seen in our population in both prenatals and children. Iron from animal sources, heme iron, is better absorbed than iron from vegetable sources, however when consumed in a mixed diet both are well absorbed. Fortification of cereals and infant formulas with ferrous sulfate appears to be well absorbed. From the Ten State Nutrtion Survey, Center for Disease Control 1972, it is evident that a very high percentage

of preschool children receive intakes of iron less than the requirement (4). Education of families concerning iron rich foods and nutritious snacks appears to be the best means of dealing with the problem. Most will consider iron fortified cereals, oatmeal, raisins, peanuts and peanut butter, dried beans and peas, and red meats as acceptable in their diet. These consumed in conjunction with folic acid in fruits increases absorption.

A tribe is a group of people who are historically bound together by social, political, and blood ties, live in a certain area and share the same language. Highly esteemed virtues and traits vary from one society to another. A child learns early in life what his family values, what they respect, how they feel. Indian homes are not child centered and family plans do not revolve around children. It is important to be surrounded by older family members. Grandparents are teachers and healers and are responsible for the lessons young Indians must learn about themselves. We must work with this generation in helping them understand the significance of dietary intake to the health of the child. When the Indian child was wrapped in the ancient way, tightly and secured to the cradleboard, the baby was with the mother, giving him a sense of being safe, loved and belonging. Presently pediatricians recommend this wrapping of the child and the modern Indian mother brings her child to clinic in this type of cradleboard.

When children feel loved, wanted, and capable of completing successfully what they set out to do it is usually reflected in their behavior and leads to the formation of a positive self image. Parents must design a plan for each child to help him reach his potential. The plan must be carefully woven like a rug. The raw materials for threads are ethnic pride, academics, moral and spiritual training. Each set of threads must be dyed to the desired color and texture. Weaving the threads together into a pattern is intricate and precise work. The final product depends on the love and constant attention of parents and caregivers. Children must be guided, as are the threads, through the maze of steps needed to create the pattern. If all the threads are carefully and lovingly woven together they will form an exquisite creation--a proud, healthy, American Indian child.